

Title (en)  
IMMERSIBLE PTC HEATING DEVICE

Title (de)  
PTC TAUCHHEIZKÖRPER

Title (fr)  
DISPOSITIF CHAUFFANT A IMMERSION ET A COEFFICIENT DE TEMPERATURE POSITIF

Publication  
**EP 1033065 A4 20010808 (EN)**

Application  
**EP 98947753 A 19981001**

Priority  
• IL 9800480 W 19981001  
• IL 12191597 A 19971007

Abstract (en)  
[origin: WO9918756A1] An electrical heating device (10) for heating liquids employing one or more positive temperature coefficient (PTC) thermistors as heating elements (11). These heating elements (11) are in direct thermal and electrical contact on opposing sides (22), which are coated with a conductive metal such as aluminum, with electrodes to supply electrical current. These electrodes are in turn in direct thermal contact on their outward-facing sides with respect to the heating elements with plates (15) which are formed of a thermally conductive and electrically insulating ceramic material such as AL<sub>2</sub>O<sub>3</sub>, and the plates are in direct thermal contact on their outward-facing sides with respect to the heating elements with heat radiation units (20) which include cooling fins for heat transfer. The heating elements are positioned by an electrically and thermally insulating frame made of heat-resistant material which serves, together with the radiation units, to fully enclose the heating elements, thereby preventing liquid from entering the interior of the device, thus rendering it immersible.

IPC 1-7  
**H05B 3/06**; **H05B 3/80**; **H05B 3/14**

IPC 8 full level  
**H05B 3/14** (2006.01); **H05B 3/80** (2006.01)

CPC (source: EP US)  
**H05B 3/14** (2013.01 - EP US); **H05B 3/80** (2013.01 - EP US); **H05B 2203/02** (2013.01 - EP US)

Citation (search report)  
• [AD] US 5598502 A 19970128 - TAKAHASHI MINORU [JP], et al  
• [A] DE 4204582 A1 19920903 - MURATA MANUFACTURING CO [JP]  
• [A] US 4948953 A 19900814 - STARCK ROLAND [DE]  
• [A] EP 0521181 A1 19930107 - DAVID & BAADER DBK SPEZFAB [DE]  
• [A] US 5326418 A 19940705 - YEH YUAN-CHANG [TW]  
• See references of WO 9918756A1

Designated contracting state (EPC)  
BE CH DE DK ES FR GB GR IT LI NL SE

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